IN THE SPECIFICATION:

Please replace the paragraph beginning at page 7, line 21, and ending at page 7, line 25, with the following amended paragraph:

The upper surface of the chamber wall 18 defines a generally flat landing area on which a base plate 33 of the lid assembly ~~34~~ 14 is supported. One or more o-ring grooves ~~36~~ are formed in the upper surface of the wall 18 to receive one or more o-rings 38 to form an airtight seal between the chamber body 12 and the base plate 33. The lid assembly will be described in more detail below.

Please replace the paragraph beginning at page 12, line 6, and ending at page 12, line 16, with the following amended paragraph:

The cooling plate 82 includes one or more fluid passages formed therein through which a cooling fluid such as water is flown. The water channel in the cooling plate is in series with cooling channels ~~88~~ formed in the chamber body. A pushlock type rubber hose with quick disconnect fittings supplies water to the chamber body and the cooling channel in the lid. The return line has a visual flowmeter with an interlocked flow switch. The flowmeter is factory calibrated for a 0.8 gpm flow rate at a pressure of about 60 psi. A temperature sensor is mounted on the dome to measure the temperature thereof. The heating plate 80 preferably has one or more resistive heating elements disposed therein to provide heat to the dome during the cleaning phase. Preferably the heating plate is made of cast aluminum, however other materials known in the field may be used. A controller is connected to the temperature control assembly to regulate the temperature of the dome.

Please replace the paragraph beginning at page 13, line 5, and ending at page 13, line 20, with the following amended paragraph:

The cathode and lift assembly will now be described with reference to Figures 5-10. The support member includes elements which are positionable within the chamber and elements positionable outside of the chamber. The elements of the support member 16 positionable within the chamber extend through access port 26 provided in

the sidewall 18 of the chamber and are supported to the sidewall by elements positionable outside of the chamber. Figure 5 is a cross-sectional view of the substrate support member 16. The support member 16 generally includes a base 94 having a flange 46 for attachment to the chamber wall, a cantilevered arm portion 96 extending radially inward therefrom, and a substrate receiving ~~portion~~ member 98 located at the end of the cantilevered arm 96. The flange 46 mounts the base 94 of the support member to the chamber wall 18 about the substrate support member access port 26. The base 94 extends inwardly from the flange 46 to define an inner curvilinear wall portion 51. The curvilinear wall 51 is preferably an arc or segment of a circle having a radius (r) substantially equal to the overall inner radius (R) of the chamber. The surface of the curvilinear wall 51 in the circumferential direction is received adjacent the inner wall 52 of the chamber. The curvilinear wall 51 along with the inner wall 52 of the chamber form a symmetrical and continuous inner chamber wall when the support member 16 is located in the chamber for processing as shown in Figure 7.

Please replace the paragraph beginning at page 13, line 21, and ending at page 14, line 1, with the following amended paragraph:

The cantilevered arm 96 extends inwardly from the lower portion of the base 94 to support the ~~ESC~~ substrate receiving ~~portion~~ member 98 having a substrate receiving surface 99 thereon. The ~~ESC~~ substrate receiving ~~portion~~ member 98 includes an upwardly extending annular pilot 100. The annular pilot 100 includes a larger inner diameter portion and a smaller inner diameter portion which form an inner annular step to support an insulative member 102 thereon. An ESC 104 is preferably supported on insulative plate 102 to provide a substrate receiving surface 99. The outer wall 50 of the ~~ESC~~ substrate receiving ~~portion~~ member 98 defines a continuous annular face.

Please replace the paragraph beginning at page 14, line 2, and ending at page 14, line 5, with the following amended paragraph:

The ~~ESC~~ substrate receiving ~~portion~~ member 98 also defines a recess 108 in which a substrate positioning assembly 110 is disposed. A bottom plate 112 is secured to the lower portion of the receiving portion by a threaded screw arrangement to protect

the inner components of the support member 16 from the processing environment.

Please replace the paragraph beginning at page 14, line 6, and ending at page 14, line 12, with the following amended paragraph:

Figure 7 is a top sectional view showing a support member 16 disposed in a chamber. The cantilevered arm 96 extends across the symmetric fluid passage 22 to support the ~~ESC~~ substrate receiving ~~portion~~ member 98 within the chamber. It is preferred that the cantilevered arm minimize interruption, restriction or disturbance of the fluid flow through the fluid passage 22 by including a fluid passage or plurality of passages 114, such as a radial passage, therethrough. It is also preferred that the support arm 116, include a passage or plurality of passages 118 therethrough to minimize interruption, restriction or disturbance of fluid flow through the uniform fluid passage.

Please replace the paragraph beginning at page 14, line 13, and ending at page 14, line 19, with the following amended paragraph:

It is also preferred that the cantilevered arm 96 attach to the ~~ESC~~ substrate receiving ~~portion~~ member 98 at a point remote from the substrate receiving surface, such as along the bottom of the ~~ESC~~ substrate receiving ~~portion~~ member 98, in order to further minimize the effect on the gases near the surface of the substrate caused by any interruption, restriction or disturbance of fluid as it passes through and around the cantilevered arm. More generally, it is preferred that any nonuniformity in the fluid passage 22 be minimized and positioned a sufficient distance from the ~~ESC~~ substrate receiving ~~surface~~ member 98 to avoid affecting the flow of fluid over a substrate placed thereon.

Please replace the paragraph beginning at page 14, line 20, and ending at page 15, line 1, with the following amended paragraph:

The substrate lift assembly 120 includes a plurality of radially extending substrate support pins 122 which are aligned with and spaced about the periphery of the ~~ESC~~ substrate receiving member 98 and are received on a winged mounting plate 123. The

mounting plate 123 is disposed within a generally rectangular recess 124 formed in the support member 16, and is actuated by a vertically moveable elevator assembly 126. As shown in Figure 5, the elevator mechanism 126 includes a vertically moveable shaft 128 that mounts a plate 130 at the upper end thereof. The shaft 128 is moved vertically up and down by an actuator, preferably a pneumatic cylinder located outside of the chamber.

Please replace the paragraph beginning at page 15, line 2, and ending at page 15, line 7, with the following amended paragraph:

The support pins 122 are received in sleeves 132 located in bores 134 disposed vertically through the ~~ESC~~ substrate receiving member 98 and move independently of support member 16 within the enclosure. Support pins 122 extend from the support member 16 to allow the robot blade to remove a substrate from the enclosure, but must sink into the support member 16 to locate a substrate on the upper surface of the ESC 104. Each pin includes a cylindrical shaft terminating in a lower spherical portion and an upper spherical portion.

Please replace the paragraph beginning at page 16, line 20, and ending at page 17, line 2, with the following amended paragraph:

Helium gas is inserted into periphery zone 170 through a ring 176 which is a groove having a series of holes in it which receive higher-pressure helium into this zone from helium line 47 of Figure 1. An inner ring 178 allows a lower pressure gas to the central zone 168 from pressure helium line 147. In operation, after establishing an initial low helium pressure in central zone 168, helium ring 178 typically will be removing helium gas leaking through seal area 172 to maintain the desired low pressure helium. In an optional embodiment, vacuum holes 180, which may be lift pin holes, can be used to pump out the gas in the central zone using a vacuum line ~~135 of Figure 1~~ to further lower the pressure in the central zone. Optionally, additional vacuum holes could be added.

Please replace the paragraph beginning at page 17, line 12, and ending at page 18, line 2, with the following amended paragraph:

In one embodiment, the seals are made of the same ceramic coating as the remainder of the top of electrostatic chuck ~~164~~ 104. Such a ceramic coating has small interstices, and thus the seal areas do not provide a perfect seal. In addition, the substrate or wafer will have some backside roughness, and may have more roughness than the substrate support. Accordingly, the seal area should have sufficient width to prevent significant leakage of helium from one area to the other. It has been determined by testing that for a ceramic covered electrostatic chuck with the pressure ranges set forth above, that a seal width of 1/10 inch, or 100 mils, is effective. Preferably, the seal width is in the range of 50 to 300 mils. For the outer seal 174, it is desirable to minimize the width because the area of the wafer above this seal will not have the benefit of the heat conduction from the high-pressure helium. At the same time, the seal must be wide enough to prevent significant leakage of helium into the chamber which could undermine its intended heat transfer capability by reaching the sustained helium pressure due to higher flow levels or affect the reaction in the chamber. The same 100 mil width has been found effective, with an optimum seal width being in the range of 50 to 300 mils. Alternate widths may be appropriate for different materials and smoothness of the substrate support and substrate. For example, if a polymer film, such as Kapton™, available from many well-known suppliers, is used, a small width can be achieved because of its compliancy.

Please replace the paragraph beginning at page 20, line 20, and ending at page 20, line 25, with the following amended paragraph:

Figure 9 is a side view of one embodiment of an ESC 104 showing a varying dielectric thickness of a dielectric 186. A wafer 182 is shown mounted on the chuck. The chuck includes an electrode portion 184 covered by dielectric 186. The dielectric extends across the top and along the sides 190 of the electrostatic chuck. As can be seen, the dielectric is thicker at a central portion 192, and thinner at peripheral portions 194. The side view shows the multiple protrusions ~~170~~ 166 and also shows the inner seal 172 and the outer seal 174.

Please replace the paragraph beginning at page 23, line 4, and ending at page 23, line 23, with the following amended paragraph:

The functions performed by the controller are done under the control of a program in memory ~~245~~ device (not shown). That program will include instructions for performing the various steps, such as instructions for reading the temperature indication from the temperature sensor, an instruction for comparing that temperature to the desired input set temperature, and an instruction for controlling the pressure valve (or flow restrictor) to vary the pressure of the gas in a particular pressure zone. Other instructions are provided to shut off the gas in the event of a fault, etc.

Please replace the paragraph beginning at page 26, line 9, and ending at page 26, line 18, with the following amended paragraph:

As shown in Figures 11, the collar 246 preferably has an inner diameter larger than the diameter of support body 232 to define a second gap 252 therebetween. Gap 252 provides room for expansion of support body 232 when it is heated in the process chamber and also ensures that the shield 242 can be installed and removed without damaging the substrate support 230 or the collar 246. Collar 246 is comprised of an insulating or dielectric material, preferably ceramic ~~or ceramic~~, that serves to prevent or inhibit the plasma in the processing chamber above the wafer from contacting, and thereby eroding, part of the electrostatic chuck. However, collar 246 is not necessarily limited to an insulating material and, in fact, applicant has found that a collar 246 made of a semiconducting material may effectively protect the electrostatic chuck from the plasma within the processing chamber.

Please replace the paragraph beginning at page 26, line 19, and ending at page 27, line 1, with the following amended paragraph:

The collar 246 is a thin ring ~~254~~ having a curved upper surface 256 that is exposed to deposition from gases in the process chamber. The ratio of the surface area of exposed upper surface 256 to the thermal mass of collar 246 is preferably high, usually about 0.1 to 5 cm^2K/J and preferably about 1 to 1.6 cm^2K/J. The high ratio of

exposed surface area to thermal mass of collar 246 causes it to be heated to a substantially high temperature from the RF energy in the chamber. Since the oxide deposition rate is generally inversely proportional to the temperature of a surface in the process chamber, the heat received by the collar 246 inhibits oxide deposition on the exposed upper surface. Thus, the geometry of collar 246 (*i.e.*, the high ratio of exposed surface to thermal mass) minimizes the rate of deposition on upper surface 256.

Please replace the paragraph beginning at page 29, line 26, and ending at page 30, line 3, with the following amended paragraph:

The nozzles 302, 304 disposed in the ports 314 are preferably threaded and mate with threads in the port to provide a seal therebetween and to provide quick and easy replacement. A restricting orifice ~~330~~ 310 is located in the end of each nozzle and can be selected to provide the desired distribution of the gas within the chamber.

Please replace the paragraph beginning at page 30, line 22, and ending at page 31, line 7, with the following amended paragraph:

Figure 16 is a cross sectional view showing the center gas feed 312 disposed through the dome 32. The top gas feed 312 is preferably a tapered structure having a base 334 which is disposed on the top of the dome and a tapered body 336 disposed in a recess formed in the dome. Two separate o-rings 336, 338, one the lower surface of the taper body 336 and one on the side surface of the taper body ~~338~~ 336 towards the lower end, provided sealable contact between the gas feed 312 and the dome of the chamber. A port 340 is formed in the lower portion of the body of the top gas feed to receive a nozzle 306 for delivering gases into the chamber. At least one gas passage 342 is disposed through the gas feed 310 connected to the port to deliver gases to the back of the nozzle. In addition, the nozzle 306 is tapered and the port 340 define a second gas 308 passage which delivers a gas along side of the nozzle 306 and into the chamber. A second gas channel 304 is disposed through the gas feed 312 to deliver gas into the passage 308. A gas, such as oxygen, can be delivered along side a gas such as SiH_4.